

Response to Arguments

1. Applicant's arguments with respect to claims 1-50 and 53-104 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues with respect to claim 41, that the cited art fails to teach the amended limitation "so that the time misalignments between the cells are substantially removed. During a telephone interview with Mr. DeLucia, Examiner informed Mr. DeLucia that the amendment cites the same limitation previously rejected, just worded differently. Mr. DeLucia further argued that the previous rejection, which utilized Surazski et al in view of Bonomi et al failed to teach the previous limitation of the "cells substantially aligned in time."

After revisiting previous cited prior art, Examiner has performed an additional search.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Surazski et al (US Pat 6,657,983) in view of Bonomi et al (US Pat 6,219,352) and Chillariga et al (US PGPUB 20060153147).

Regarding claim 41, Surazski et al (US Pat 6,657,983) discloses scheduling and managing routing of ATM data in a communication system, wherein the architecture includes plurality of cells that make up a frame/packet accompanied by mini-slots (timeslots) time received/arrival time, and burst of packets or synchronous data stream (plurality of cells) are received (every cell/burst) in a specific scheduling period wherein the scheduling period is a time interval (timeout period) in which cells arrive (col. 8, line 21-67), and received burst packet is transmitted with timeslot and timestamp in a specified scheduling period, output cells associated with burst packet are coupled to a frame module/framer for further cell processing (Abstract, Figs. 9, 11, 12, col. 2, line 56-67, col. 4, line 12-30, col. 5, line 23-45, line 54-67, col. 6, line 35-28, col. 9, line 22-45). Surazski is silent on buffering a plurality of cells until every one of the plurality of cells is received and time misalignments between the cells are substantially removed.

In a communication system that schedules and manages ATM data, Bonomi discloses a switch environment supporting efficient transmission of frames wherein managing of cell routing is implemented, wherein the architecture includes a plurality of cells being received (cells in frame), and ATM switch buffers all cells of a frame until the last cell of a frame is received, then transmits the whole frame as associated with scheduling (Abstract, col. 5, line 25-47), and

Chillariga discloses scheduling burst sequences in a wireless communication environment whereby received/transmitted burst are synchronously aligned with the time slots (paragraph 0129, 0133, 0134, 0138, 0139, 0140time misalignments between the cells are substantially removed).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to be motivated to implement buffering a plurality of cells until every cell (burst/frame) is received as taught by Bonomi with the teachings of Surazski for the purpose of further managing cell routing, improving transmission speed and increasing throughput. In addition, it would have been further obvious to one of ordinary skill in the art to implement "time misalignments between the cells are substantially removed" as taught by Chillariga with the combined teachings of Bonomi and Surazski to further manage routing and communication of data in a wireless environment as to minimize contention.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an

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international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 87-92 are rejected under 35 U.S.C. 102(e) as being anticipated by Ofek et al (US Patent 6,385,198).

Ofek discloses controlling creation of data paths for forwarding packets in networks, wherein the architecture includes a plurality of source and destination switches, wherein switches select time slots at random (Fig. 17, col. 9, line 28-67, col. 10, line 2-29), schedule controller and signaling scheduler uses protocol/control information in calculating/determining (decide/arbitrate) the route for further forwarding of data and messages (col. 1, line 45-67, col. 9, line 28-line 67, decisions based on control data, and determine where data should routed/forwarded) and implementation of scheduling via a scheduler that distributes and receives TCP signaling messages (Fig. 13, col. 12, line 27-65, control information).

Regarding claim 88, Ofek further discloses switches and associated scheduling and computing procedures via switch signaling controller/distributed scheduler (col. 5, line 60 thru col. 6, line 21).

Regarding claim 89, Ofek further discloses identifiers associated with a multiplicity of elements such as sending/receiving switch ID, controller ID, frame ID, port ID, source/destination ID, and priority forwarding IDs, request IDs, control information (col. 11, line 40-67).

Regarding claim 91, Ofek further discloses an algorithm for computing transmission schedule as associated with routing, and a schedule is built along route path, and wherein the

time slot includes signaling controller (control information), request ID and other data fields (Fig. 14, 15 and 17).

Regarding claim 92, Ofek further discloses that in an IP environment flow of data is controlled via predetermined time frames, connections and capacity (col. 2, line 1-9 and 45-63).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 90 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ofek et al (US Patent 6,385,198) in view of Kondylis et al (US Pat 6,721,290).

Regarding claim 90, as indicated above, Ofek discloses controlling creation of data paths for forwarding packets in networks, wherein the architecture includes a plurality of source

and destination switches, wherein switches select time slots at random (Fig. 17, col. 9, line 28-67, col. 10, line 2-29), schedule controller and signaling scheduler uses protocol/control information in calculating/determining (decide/arbitrate) the route for further forwarding of data and messages (col. 1, line 45-67, col. 9, line 28-line67, decisions based on control data, and determine where data should routed/forwarded) and implementation of scheduling via a scheduler that distributes and receives TCP signaling messages (Fig. 13, col. 12, line 27-65, control information).

Ofek is silent on distributed scheduler providing CTS signal to a source.

In a wireless communication system a multicast scheduler utilizes RTS/CTS protocols as associated with communication between source and destination (col. 2, line 33-67, col. 11, line 10-20, col. 15, line 35-42).

Therefore, it would have been obvious to one of ordinary skill in the art would have been motivated to implement a scheduler providing a CTS with respect to other network communicating nodes as taught by Kondylis with the teachings of Ofek for the purpose of further minimizing collision of data in a multi-access environment.

Allowable Subject Matter

9. Claim 1-32, 37-40, 42, 43-50, 53-81 and 93-97 is allowed over prior art.

10. The following is a statement of reasons for the indication of allowable subject matter: Although the prior art discloses routing in a communication system that utilizes arbitration schemes and communicating RTS data, they fail to teach or suggest with respect to claims 1-2,

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a switch fabric that includes a plurality of fabric gateways and an arbitration component configured to arbitrate a second plurality of RTSs, with respect to claim 3, wherein shifting the frame position for each cell of a column one additional row from a shifted frame position in a prior column, with respect to claim 5, shifted frame associated with a plurality of rows, each row associated with the shifted frame associated with an output link, respect to claims 7-10, reordering the plurality of cells within the frame to produce a shifted frame, each cell being reordered so that each row associated with the frame is uniquely associated with a time slot associated with the shifted frame, with respect to claim 11, time-division de-multiplexing a plurality of CTSs associated with a second frame, a first CTS from the plurality of CTSs associated with a second frame being associated with an availability of a first RTS associated with a cell from the plurality of cells of a first frame, with respect to claim 13, third frame cells being next in time from the plurality of cells associated with the first frame, with respect to claim 14, a cell slot translator configured to shift, with respect to claims 15-22 & 75, switch fabric that includes control portion that is unrelated to data portion of a cell, wherein the control portion includes RTS that identify virtual output queue (VOQ) having a buffered data portion, grouping a first plurality of RTSs and a second plurality of RTSs to produce a set of grouped RTSs, and arbitrating the set of grouped RTSs to produce a plurality of selected RTSs, with respect to claims 23-25, comparators coupled to a second memory wherein the comparators are configured to compare an input port schedule value with the plurality of input port requests to produce an output port grant, each comparator from the plurality of comparators being further configured to compare an output port schedule value with a plurality of output port grants including the produced output port grant to produce an input port/output port designation, with respect to claims 26-27, a switch fabric that include grouping a plurality of RTS, forming a plurality of vectors based on the grouped RTSs, wherein each vector is associated with a

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timeslot representing a status of an output port request for each link, with respect to claims 28-32, RTSSs being stored in a grouping memory and the arbitration component arbitrating concurrently the first plurality of RTSSs to produce a plurality of selected RTSSs, with respect to claims 37-40, data alignment controller configured to send a forwarding signal to the data storage controller at the latest receipt time associated with the plurality of data cells that is within a timeout period, with respect to claim 42, before sending plurality of cells, providing an idle cell for each cell from the plurality of cells that are not received within timeout period, with respect to claims 43-50, a first receipt time and a second data cell associated with the first time slot and a second receipt time later than the first receipt time, with respect to 53-64 and 71-73, a switching fabric that includes a plurality of fabric gateway components coupled to a plurality of multiplexer/de-multiplexer components and providing at least a third plurality of multiplexer/de-multiplexer components coupled to its own plurality of fabric gateway components, removably coupling the first plurality of switching components and the second plurality of switching components to the first plurality of multiplexer/de-multiplexer components, the second plurality of multiplexer/de-multiplexer components, with respect to claim 65, reconfiguring the first plurality of configurable components from the second configuration to the first configuration and removably coupling the second plurality of configurable components to the first plurality of configurable components, with respect to claims 62-64, a switch fabric that includes a plurality of fabric gateway components, a first set of configurable components coupled to a plurality of fabric gateway components, with respect to 69, providing at a third plurality of multiplexer/de-multiplexer cards coupled to its own plurality of line cards, providing a second plurality of switching cards and removably coupling the first plurality of switching cards and the second plurality of switching cards to the first plurality of switching cards and the second plurality of switching cards to the first, second and third plurality of mux/demux cards, with respect to 74,

distributed scheduler having a control path with a rate less than a rate of a control path of a centralized scheduler with a data path having a rate similar to the data rate of the distributed scheduler with respect to claims 76-82, buffering the plurality of cells in a plurality of virtual output queues (VOQ) wherein a first VOQ being associated with the first priority value and the second priority value, each remaining VOQ from the plurality of VOQs being uniquely associated with a remaining priority value from the plurality of priority values, with respect to claim 90, distributed scheduler specifies to a source the destination to which the source should forward data by providing a CTS to the source, with respect to claims 87, a scheduler arranged to receive control information and data from a source within a random time slots, and specify to source at least one destination to which the source should forward further data associated with the control data.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prenell P. Jones whose telephone number is 571-272-3180. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Prenell P. Jones
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Supervisory Patent Examiner,
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